

**Potlatch**

laminated roof decking

LOCK-DECK2g
Po.

- end-matched tongue-and-grooved
- choice of attractive facings
- reduces shrinkage, checking, warping
- offset eliminates splines and drilling
- increases coverage 5-10%
- reduces installation costs up to 50%

pfiBRADLEY - SOUTHERN DIVISION
POTLATCH FORESTS, INC.
WARREN, ARKANSAS**POTLATCH FORESTS INC.**

GENERAL OFFICES, Lewiston, Idaho

symbol of
quality
since 1906

Potlatch LOCK-DECK

ROOF DECKING

*answers the demands
of architects, the
needs of builders*

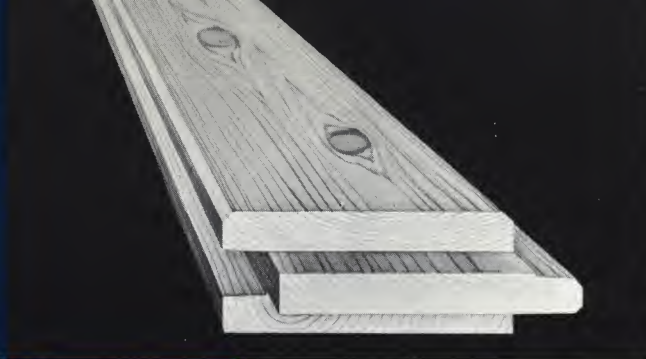
Lock-Deck Roof Decking is a glued, laminated wood construction product manufactured by Potlatch Forests, Inc., from specially selected kiln dried lumber.

This heavy-duty roof decking is laminated by an exclusive Potlatch gluing process which provides a glue line that is stronger than the wood itself—completely waterproof and ideally suited to exterior conditions.

This stable, dependable roof decking has a unique tongue-and-groove and end-matched feature, which increases coverage 5-10%; reduces labor time to a minimum, in many cases as much as 50%.

Three and four-inch Lock-Deck has a single tongue-and-groove; heavier, five-inch decking features a double tongue-and-groove for additional stability. Finished decking leaves the mill in the 10% to 12% moisture content range.

Potlatch's scientifically balanced drying, laminating and machining permits this heavy duty roof decking to retain its original dimensions through years of normal service. The quality of Lock-Deck is certified by TECO (Timber Engineering Co.)



Potlatch LOCK-DECK

AVAILABLE IN FIVE SOFTWOODS AND FIVE FACE APPEARANCES

Potlatch Lock-Deck is available in 5 different species of softwood lumber.* Lock-Deck with a facing of one species may have back and interior laminations of different woods. It can also be supplied with all laminations of the same species or with any combination of woods and laminations desired.

1. **Decorative One Side.** Growth characteristics enhance the attractiveness of the decking without impairing its strength and utility. Sound knots, knot checks, small spike knots, occasional slight checks and sloughed knots on the edges of the piece often add visual interest to the face. Large checks, splits, decay, knot holes and surface skips in the dressing are rejected. The back laminates of Decorative One Side type Lock-Deck may have knot holes to 1- $\frac{1}{2}$ " in diameter, loose knots up to 2", or other characteristics which do not cause weakening.
2. **Decorative Two Sides.** Same decorative characteristics as above on both sides.
3. **Select One Side.** Highest quality lumber makes up the face of Select One Side Lock-Deck. The natural characteristics allowed are the same as in "D" select grades of the five species offered. Back laminates are the same as described for Decorative One Side.
4. **Select Two Sides.** Same as above on both sides.
5. **Service Type.** Both face and back laminations of Service Type Lock-Deck may show checks, splits, knot holes up to 1- $\frac{1}{2}$ " in diameter (which do not reduce the strength), and minor manufacturing defects. Limited decay areas are allowed only if they do not affect recommended span values. Service Type is offered for use where appearance is not a factor or where a finish surface will be used to cover.

LOCK-DECK PATTERNS

The standard pattern of laminated Lock-Deck is surfaced two sides and center matched with an edge VEE on decorative faces. It is also end-matched to eliminate splines and provide greater strength at end joints. The tongue is slightly beveled to give easier entry into groove of the adjoining piece. Pattern Description— S2S & CM EVIS EM.

AVAILABLE LENGTHS

Normally Lock-Deck is manufactured in even foot lengths from six to sixteen feet. Other lengths from six to twenty feet are often available on special order but please inquire before specifying.

Random length shipments contain approximately 50% fourteen and sixteen foot lengths (minimum 25% sixteen feet) and 50% six to twelve foot lengths (maximum 10% under ten foot including not more than 3% six foot). Random length orders do not include any lengths under six foot.

LOCK-DECK SIZES

Potlatch Lock-Deck is manufactured in two widths and four thicknesses, with center and end matching. The tongues and grooves are produced by off-setting the laminations at the time of gluing. This gives Lock-Deck five to ten percent greater face width than solid lumber decking.

ACTUAL SIZES—

Thickness	
2 $\frac{1}{4}$ "	} All available in either 5 $\frac{1}{2}$ " or 7 $\frac{1}{2}$ " widths
2 $\frac{5}{8}$ "	
3 $\frac{1}{16}$ "	
3 $\frac{13}{16}$ "	



*5 Lock-Deck Softwoods:
Idaho White Pine, Inland Red Cedar, Idaho White Fir, Ponderosa Pine and Southern Pine. See page 7 for stiffness (E) classification of various species.

Potlatch LOCK-DECK CONSTRUCTION SYSTEMS

CANTILEVERED PIECES INTERMIXED

This deck style allows location of joints at quarter points as well as over supports and uses planks of equal length except for short filler planks at the ends. This can best be explained by referring to the illustration at right.

RANDOM LENGTH CONTINUOUS

This is the most popular type of deck construction. The deck (not individual courses) is continuous over three or more supports. The following specific rules must be observed when this system is employed:

The distance between joints in adjacent rows of decking must be at least two feet.

Joints in rows not directly adjacent must be separated by one row of decking and one foot measured along the axis of the plank, or by two rows of decking.

In any section of a deck less than one foot in length the number of end joints must not exceed one-third of the number of decking courses.

Planks must rest on at least one support. That is, there may be only one joint in each row between supports.

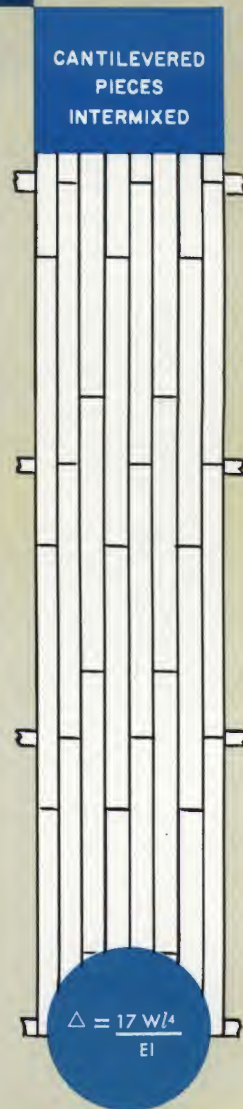
Joints must all be end-matched. Courses must be slant nailed within one foot of all end joints.

Random length continuous deck systems must be continuous over three or more supports.

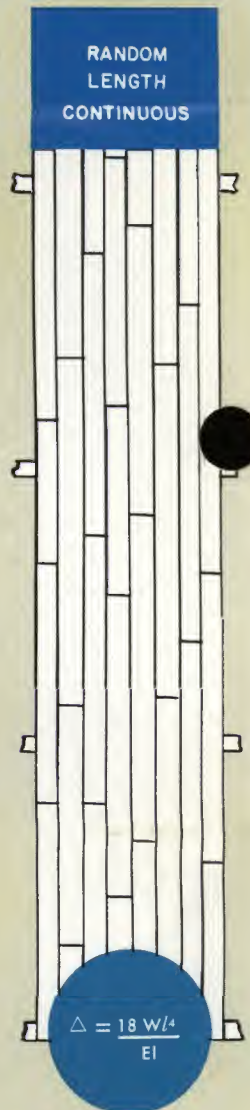
This method of construction permits the best use of random length material. It is particularly suitable where fitting of deck planks around construction details is necessary. Spans exceeding sixteen feet can be made by the random arrangement of joints using 14' and 16' lengths of decking.

SIMPLE SPAN

This type of construction results in the least stiffness of the various styles described. The decking planks are simply supported at each end giving more deflection for a given load than other types described here.



TYPE C



TYPE D

Δ —Maximum deflection in inches

W —Uniformly distributed load in lbs. per sq. ft.

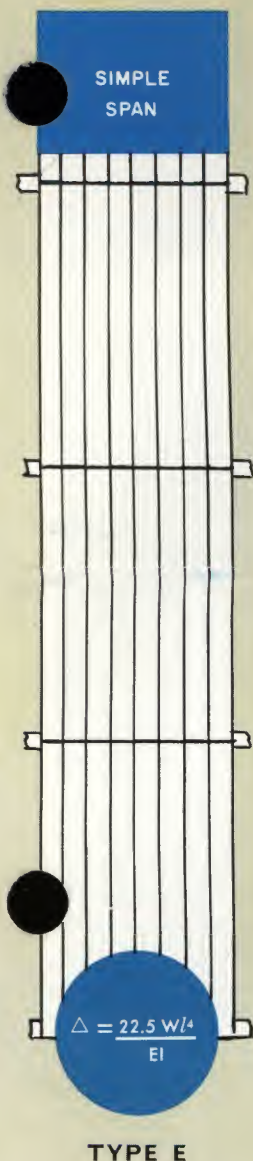
l —Span in feet

I —Moment of inertia of section of deck one foot wide in inches⁴.

E —Modulus of elasticity, PSI.

Potlatch LOCK-DECK NAILING

Nailing is simplified with Potlatch laminated roof decking. Pre-drilling and long horizontally-driven spikes are not necessary nor are metal splines at the end joints. Simple slant nailing is adequate to fasten adjacent rows of decking together as illustrated.



NAILING DETAILS

Slant nails into tongue starting 1" from groove edge at 45° angle.

RECOMMENDED NAILS

For 3" deck use 8d nails on 30" centers.

For 4" and 5" deck use 16d nails on 30" centers.

SUGGESTED SPECIFICATIONS

Decking shall be Potlatch Lock-Deck, exterior grade (waterproof type) as manufactured by Potlatch Forests, Inc., Lewiston, Idaho and Warren, Arkansas or approved equal.

FACE TYPE

DECORATIVE One Face, DECORATIVE Two Faces, SELECT One Face, SELECT Two Faces, or SERVICE Type.

MOISTURE CONTENT

Average 10 percent (Maximum 12 percent) measured throughout the piece.

LENGTHS

Shall be random lengths with approximately 50% 14' and 16' and 50% 6' to 12' (Shipment shall contain not less than 25% 16' and not more than 10% under 10' including up to 3% 6'.) (Alternate: specified lengths from 10' through 16', other lengths subject to special inquiry.)

MANUFACTURE

Ends and edges to be heavy tongue and groove, precision manufactured to permit tight face joints. Edges of exposed face or faces to be beveled with a 1/4" Vee to form 1/2" Vee when two pieces are joined.

ESTIMATING FACTORS

In estimating the board measure quantities required to cover given areas multiply the square foot area by:

3.3 for 2 1/4" and 2 5/8" Lock-Deck

4.4 for 3-1/16" Lock-Deck

5.5 for 3-13/16" Lock-Deck

Potlatch LOCK-DECK INSULATION FACTORS

Overall heat transmission coefficients (U) for Lock-Deck made from several species of wood with three-ply built-up roof and different thicknesses of rigid insulation board (K=0.36).

Species	Decking Thickness		Insulation Thickness				
	Nominal	Actual	0	1/2"	1"	1 1/2"	2"
Inland Red Cedar (all laminations)	3"	2 1/4"	.24	.18	.14	.12	.10
	3" (super)	2 5/8"	.22	.16	.13	.12	.10
	4"	3 1/16"	.19	.15	.12	.11	.09
	5"	3 3/16"	.15	.13	.11	.09	.08
Southern Yellow Pine	3"	2 1/4"	.30	.21	.16	.13	.11
	3" (super)	2 5/8"	.27	.20	.15	.12	.10
	4"	3 1/16"	.24	.18	.14	.12	.10
	5"	3 3/16"	.20	.15	.13	.11	.10
White Fir Idaho White Pine Ponderosa Pine	3"	2 1/4"	.27	.19	.15	.12	.11
	3" (super)	2 5/8"	.24	.18	.14	.12	.11
	4"	3 1/16"	.21	.16	.13	.11	.10
	5"	3 3/16"	.17	.14	.12	.10	.09
White Fir centers and backs with faces of Cedar, Idaho White Pine or Ponderosa Pine	3"	2 1/4"	.26	.19	.15	.12	.11
	3" (super)	2 5/8"	.24	.18	.14	.12	.11
	4"	3 1/16"	.21	.16	.13	.11	.10
	5"	3 3/16"	.18	.14	.12	.10	.09
Inland Red Cedar centers and backs with faces of Idaho White Pine	3"	2 1/4"	.25	.19	.15	.12	.11
	3" (super)	2 5/8"	.23	.18	.14	.12	.11
	4"	3 1/16"	.20	.16	.13	.11	.10
	5"	3 3/16"	.16	.13	.11	.10	.09

PROPERTIES OF SECTIONS ONE FOOT WIDE

Nominal Thickness	Actual Thickness	Area	Moment of Inertia	Section Modulus	Design Weight lbs./sq. ft.		
					A *	B	C
inches	inches	sq. in.	in. 4	in. 3			
3	2 1/4	26.4	11.06	9.74	4.5	5.0	6.5
3 (super)	2 5/8	30.8	17.7	13.44	5.3	5.8	7.6
4	3 1/16	35.9	27.8	18.05	6.0	7.6	8.5
5	3 3/16	43.3	53.8	28.2	7.5	9.5	10.5

*A is for Inland Red Cedar.

B is for Ponderosa Pine, Idaho White Pine, and White Fir.

C is for Southern Yellow Pine.

SPAN TABLES

Allowable spans for Simple Span, Random Length Continuous, and Cantilevered Pieces Intermixed constructions.

Note: Some designers base their selection of allowable spans on "live load only" for deflection, and total "live plus dead load" for bending stress. For the tabulated spans, Lock-Deck will bear a dead load of 20 lbs. per square foot above those loads in the second column without exceeding the allowable bending stress. Horizontal shear stresses will be well below the allowable values.

*Stiffness corresponds to Modulus of Elasticity.

Use E = 1.2 for Western Red Cedar, Ponderosa Pine, or any combination of these woods with other species.

Use E = 1.4 for White Fir, Idaho White Pine, or combinations of these two species.

Use E = 1.6 for Southern Yellow Pine.

**S.S. = Simple span, Type E, page 6.

R.L.C. = Random length continuous, Type D, page 6.

C.P.I. = Cantilevered pieces intermixed, Type C, page 6.

ALLOWABLE SPANS FOR LAMINATED DECKING FOR THREE VALUES OF ELASTICITY (E)

ALLOWABLE SPAN IN FEET AND INCHES							
Stiffness* of Deck	Load in Pounds per Sq. Ft.	Based on Maximum Deflection of 1/180 of Span			Based on Maximum Deflection of 1/240 of Span		
		S.S.**	R.L.C.	C.P.I.	S.S.	R.L.C.	C.P.I.
3 INCH THICK LOCK-DECK (2 1/4")							
E 1.2	20	12- 6	13- 6	13- 9	11- 4	12- 3	12- 5
	30	11- 0	11- 9	12- 0	9-11	10- 8	10-10
	40	9-11	10- 8	10-10	9- 0	9- 9	9-11
	50	9- 3	9-11	10- 1	8- 5	9- 0	9- 3
	60	8- 8	9- 3	9- 5	7-11	8- 6	8- 8
E 1.4	20	13- 2	14- 3	14- 6	12- 0	12-11	12- 1
	30	11- 6	12- 5	12- 8	10- 5	11- 3	11- 5
	40	10- 5	11- 3	11- 5	9- 6	10- 3	10- 5
	50	9- 9	10- 5	10- 8	8-10	9- 6	9- 8
	60	9- 1	9- 9	10- 0	8- 4	8-11	9- 2
E 1.6	20	13-10	14-10	15- 2	12- 6	13- 6	13- 8
	30	12- 1	13- 0	13- 2	10-11	11- 9	12- 0
	40	10-11	11- 9	12- 0	9-11	10- 9	10-11
	50	10- 2	10-11	11- 2	9- 3	9-11	10- 2
	60	9- 6	10- 3	10- 5	8- 8	9- 4	9- 7
3 INCH SUPER-THICK LOCK-DECK (2 5/8")							
E 1.2	20	14- 7	15- 9	16- 0	13- 2	14- 3	14- 6
	30	12-10	13- 8	14- 0	11- 7	12- 5	12- 7
	40	11- 7	12- 5	12- 7	10- 6	11- 4	11- 7
	50	10- 9	11- 7	11- 9	9-10	10- 6	10- 9
	60	10- 1	10- 9	10-11	9- 3	9-10	10- 1
E 1.4	20	15- 4	16- 7	—	14- 0	15- 1	15- 3
	30	13- 5	14- 6	14- 9	12- 1	13- 1	13- 4
	40	12- 1	13- 1	13- 4	11- 1	11-11	12- 1
	50	11- 4	12- 1	12- 5	10- 3	11- 1	11- 3
	60	10- 7	11- 4	11- 8	8- 8	10- 4	10- 8
E 1.6	20	16- 1	17- 3	17- 8	14- 7	15- 8	15-10
	30	14- 1	15- 2	15- 4	12- 9	13- 8	14- 0
	40	12- 9	13- 8	14- 0	11- 7	12- 6	12- 9
	50	11-10	12- 9	13-10	10- 9	11- 7	11-10
	60	11- 1	11-11	12- 1	10- 1	10-10	11- 2

ALLOWABLE SPAN IN FEET AND INCHES							
Stiffness* of Deck	Load in Pounds per Sq. Ft.	Based on Maximum Deflection of 1/180 of Span			Based on Maximum Deflection of 1/240 of Span		
		S.S.**	R.L.C.	C.P.I.	S.S.	R.L.C.	C.P.I.
4 INCH THICK LOCK-DECK (3 1/16")							
E 1.2	20	17- 0	18- 4	—	15- 5	16- 7	—
	30	14-11	16- 0	—	13- 6	14- 6	14- 9
	40	13- 6	14- 6	14- 9	12- 3	13- 2	13- 5
	50	12- 6	13- 6	13- 9	11- 5	12- 4	12- 6
	60	11- 9	12- 7	12-10	10- 9	11- 6	11- 9
E 1.4	20	18- 0	19- 4	—	16- 3	17- 6	—
	30	15- 8	16-11	—	14- 2	15- 3	15- 6
	40	14- 2	15- 3	15- 7	12-11	13-11	14- 2
	50	13- 3	14- 3	14- 6	12- 0	12-11	13- 2
	60	12- 4	13- 3	13- 6	11- 4	12- 2	12- 5
E 1.6	20	18- 9	20- 2	—	17- 0	18- 4	18- 8
	30	16- 5	17- 8	17-10	14-10	16- 0	16- 4
	40	14-10	16- 0	16- 4	13- 6	14- 7	14-10
	50	13-10	14-11	15- 2	12- 6	13- 6	13- 9
	60	12-11	13-11	14- 2	11-10	12- 9	13- 0
5 INCH THICK LOCK-DECK (3 13/16")							
E 1.2	20	—	22-10	—	19- 3	20- 6	—
	30	18- 6	20- 0	—	16- 9	18- 0	—
	40	16- 9	18- 0	—	15- 3	16- 5	—
	50	15- 7	16- 9	—	14- 2	15- 3	15- 7
	60	14- 7	15- 9	16- 0	13- 4	14- 4	14- 7
E 1.4	20	—	24- 0	—	—	21- 9	—
	30	19- 6	21- 0	—	17- 8	19- 0	—
	40	17- 8	19- 0	—	15- 1	17- 4	—
	50	16- 4	17- 8	—	14-11	16- 1	—
	60	15- 4	16- 7	—	14- 1	15- 2	15- 5
E 1.6	20	—	25- 2	—	—	22- 9	—
	30	19- 8	22- 0	—	18- 6	19-10	—
	40	18- 6	19-10	—	16-10	18- 2	18- 5
	50	17- 3	18- 6	18-10	15- 7	16-10	17- 2
	60	16- 1	17- 3	17- 8	14- 9	15-10	16- 2

End-matched Lock-Deck is available up to 20' in length in Southern Yellow Pine and up to 16' in length in Western softwood species. Square-end Lock-Deck is available up to 20' in length in all species. Designs requiring lengths longer than these are therefore not possible, including simple spans over 20', and C.P.I. spans over 16' (20' for Southern Yellow Pine). R.L.C. systems using lengths shorter than the span are possible within the scope of the rules on page 4 in certain instances.

Potlatch LOCK-DECK

Certified by Timber Engineering Co.

Each piece of Potlatch Lock-Deck will carry the TECO Tested Quality stamp. The assigned grade stamp on the back (as illustrated below) corresponds to the Modulus of Elasticity ("E" value) in accordance with the stiffness value assigned different species and combinations of species.

TECO TESTED QUALITY
LAMINATED WOOD PRODUCT
E 1.2  MILL 12

**E 1.2
MILL 12**

TECO TESTED QUALITY
Laminated Wood Product

TECO TESTED QUALITY
LAMINATED WOOD PRODUCT
E 1.4  MILL 12

**E 1.4
MILL 12**

TECO TESTED QUALITY
Laminated Wood Product

TECO TESTED QUALITY
LAMINATED WOOD PRODUCT
E 1.6  MILL 12

**E 1.6
MILL 12**

TECO TESTED QUALITY
Laminated Wood Product

FIRE RESISTANCE

Thick laminated Lock-Deck may be used in heavy timber construction as provided in Section 2514 of the Uniform Building Code, Vol. 1, by the International Conference of Building Officials. Three inch decking meets the thickness requirements for heavy timber roof decks and four inch or five inch meets the requirements for heavy timber floors for Type III heavy timber buildings. The U. S. Forest Products Laboratory "Wood Handbook" (USDA Handbook No. 72), Pages 345 and 346 states that phenol and resorcinol glued members are at least equal in fire resistance to one-piece members of the same size.

ADHESIVE:

Meets the requirements of MIL-A-397B for intermediate-temperature-setting adhesives and/or MIL-A-5534A for high-temperature-setting adhesives.

BUILDING CODE APPROVAL

I.C.B.O. Research Recommendation 1379.3 dated September 8, 1961 covers the use of Lock-Deck for Heavy Timber Construction under the rules of the Uniform Building Code.

Please write for further information and specifications.

Manufactured by Potlatch Forests, Inc., in Lewiston, Idaho and Warren, Arkansas.

Lumber used for laminating is graded under general grading rules the appropriate lumber manufacturer's association as modified to meet special quality requirements (copies of the special modified rules are available on request).

ABOUT DEFLECTIONS

Deflections of 1/180 and 1/240 of the span cover the range generally specified for roof decks. In some instances, as deck structures supporting plastered ceilings, a 1/360 span deflection may be specified. In these cases the allowable loads for any given span are one half of those given in the 1/180 span tables.

The allowable spans in the table are based on end span deflections, assuming all joists are equally spaced. The deflections of the end spans in roof decks with more than three equally spaced supports (except Simple Span type) exceed the deflections of more centrally located spans. The use of closer support spacing at the ends of a deck will reduce the end-span deflections and permit the designer to meet deflection requirements more economically without resorting to reduced spans for the entire deck. If desired, all except the end spans may be increased 10 percent to give approximately equal deflections in all spans.



POTLATCH FORESTS INC.
GENERAL OFFICES, Lewiston, Idaho

symbol of
quality
since 1906

LITHO IN U.S.A.